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SEQUENCE LISTING

(1) GENERAL INFORMATION:

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(ii) TITLE OF INVENTION: NOVEL THERAPEUTIC MOLECULES

(iii) NUMBER OF SEQUENCES: 26

(iv) CORRESPONDENCE ADDRESS:

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(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk

(B) COMPUTER: IBM PC compatible

(C) OPERATING SYSTEM: PC-DOS/MS-DOS

(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

(vi) CURRENT APPLICATION DATA:

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- (A) APPLICATION NUMBER: PCT INTERNATIONAL
- (B) FILING DATE: 17 SEPTEMBER 1998

(vii) PRIOR APPLICATION DATA:

- (A) APPLICATION NUMBER: PO9263
- (B) FILING DATE: 17 SEPTEMBER 1997

PRIOR APPLICATION DATA:

- (A) APPLICATION NUMBER: PO9373
- (B) FILING DATE: 24 SEPTEMBER 1997

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- (C) TELEX: AA 31787

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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 333 nucleotides

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(ix) FEATURE:

(A) NAME/KEY: CDS

(B) LOCATION: 1..333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

ATG GCC AAG CAA CCT TCT GAT GTA AGT TCT GAG TGT GAC AGA GAA GGT	48
Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly	
1 5 10 15	
GGA CAA TTG CAG CCT GCT GAG AGG CCT CCC CAG CTC AGG CCT GGG GCC	96
Gly Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala	
20 25 30	
CCT ACC TCC CTA CAG ACA GAA CCG CAA GCT TCC ATA CGA CAG TCT CAG	144
Pro Thr Ser Leu Gln Thr Glu Pro Gln Ala Ser Ile Arg Gln Ser Gln	
35 40 45	
GAG GAA CCT GAA GAT CTG CGC CCG GAG ATA CGG ATT GCA CAG GAG CTG	192
Glu Glu Pro Glu Asp Leu Arg Pro Glu Ile Arg Ile Ala Gln Glu Leu	
50 55 60	
CGG CGG ATC GGA GAC GAG TTC AAC GAA ACT TAC ACA AGG AGG GTG TTT	240
Arg Arg Ile Gly Asp Glu Phe Asn Glu Thr Tyr Thr Arg Arg Val Phe	
65 70 75 80	
GCA AAT GAT TAC CGC GAG GCT GAA GAC CAC CCT CAA ATG GTT ATC TTA	288
Ala Asn Asp Tyr Arg Glu Ala Glu Asp His Pro Gln Met Val Ile Leu	
85 90 95	
CAA CTG TTA CGC TTT ATC TTC CGT CTG GTA TGG AGA AGG CAT TG	333
Gln Leu Leu Arg Phe Ile Phe Arg Leu Val Trp Arg Arg His	
100 105 110	

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(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 110 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

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Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly
 1             5             10             15

Gly Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala
          20             25             30

Pro Thr Ser Leu Gln Thr Glu Pro Gln Ala Ser Ile Arg Gln Ser Gln
          35             40             45

Glu Glu Pro Glu Asp Leu Arg Pro Glu Ile Arg Ile Ala Gln Glu Leu
          50             55             60

Arg Arg Ile Gly Asp Glu Phe Asn Glu Thr Tyr Thr Arg Arg Val Phe
          65             70             75             80

Ala Asn Asp Tyr Arg Glu Ala Glu Asp His Pro Gln Met Val Ile Leu
          85             90             95

Gln Leu Leu Arg Phe Ile Phe Arg Leu Val Trp Arg Arg His
          100            105            110

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(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 423 nucleotides
- (B) TYPE: nucleic acid

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(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(ix) FEATURE:

(A) NAME/KEY: CDS

(B) LOCATION: 1..423

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

ATG GCC AAG CAA CCT TCT GAT GTA AGT TCT GAG TGT GAC AGA GAA GGT	48
Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly	
1 5 10 15	
GGA CAA TTG CAG CCT GCT GAG AGG CCT CCC CAG CTC AGG CCT GGG GCC	96
Gly Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala	
20 25 30	
CCT ACC TCC CTA CAG ACA GAA CCG CAA GAC AGG AGC CCG GCA CCC ATG	144
Pro Thr Ser Leu Gln Thr Glu Pro Gln Asp Arg Ser Pro Ala Pro Met	
35 40 45	
AGT TGT GAC AAG TCA ACA CAA ACC CCA AGT CCT CCT TGC CAG GCC TTC	192
Ser Cys Asp Lys Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe	
50 55 60	
AAC CAC TAT CTC AGT GCA ATG GCT TCC ATA CGA CAG TCT CAG GAG GAA	240
Asn His Tyr Leu Ser Ala Met Ala Ser Ile Arg Gln Ser Gln Glu Glu	
65 70 75 80	
CCT GAA GAT CTG CGC CCG GAG ATA CGG ATT GCA CAG GAG CTG CGG CGG	288
Pro Glu Asp Leu Arg Pro Glu Ile Arg Ile Ala Gln Glu Leu Arg Arg	
85 90 95	
ATC GGA GAC GAG TTC AAC GAA ACT TAC ACA AGG AGG GTG TTT GCA AAT	336
Ile Gly Asp Glu Phe Asn Glu Thr Tyr Thr Arg Arg Val Phe Ala Asn	
100 105 110	
GAT TAC CGC GAG GCT GAA GAC CAC CCT CAA ATG GTT ATC TTA CAA CTG	384
Asp Tyr Arg Glu Ala Glu Asp His Pro Gln Met Val Ile Leu Gln Leu	
115 120 125	

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TTA CGC TTT ATC TTC CGT CTG GTA TGG AGA AGG CAT TG

423

Leu Arg Phe Ile Phe Arg Leu Val Trp Arg Arg His

130

135

140

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 140 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly

1

5

10

15

Gly Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala

20

25

30

Pro Thr Ser Leu Gln Thr Glu Pro Gln Asp Arg Ser Pro Ala Pro Met

35

40

45

Ser Cys Asp Lys Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe

50

55

60

Asn His Tyr Leu Ser Ala Met Ala Ser Ile Arg Gln Ser Gln Glu Glu

65

70

75

80

Pro Glu Asp Leu Arg Pro Glu Ile Arg Ile Ala Gln Glu Leu Arg Arg

85

90

95

Ile Gly Asp Glu Phe Asn Glu Thr Tyr Thr Arg Arg Val Phe Ala Asn

100

105

110

Asp Tyr Arg Glu Ala Glu Asp His Pro Gln Met Val Ile Leu Gln Leu

115

120

125

Leu Arg Phe Ile Phe Arg Leu Val Trp Arg Arg His

130

135

140

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(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 591 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

ATG GCC AAG CAA CCT TCT GAT GTA AGT TCT GAG TGT GAC AGA GAA GGT	48
Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly	
1 5 10 15	
GGA CAA TTG CAG CCT GCT GAG AGG CCT CCC CAG CTC AGG CCT GGG GCC	96
Gly Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala	
20 25 30	
CCT ACC TCC CTA CAG ACA GAA CCG CAA GGT AAT CCC GAC GGC GAA GGG	144
Pro Thr Ser Leu Gln Thr Glu Pro Gln Gly Asn Pro Asp Gly Glu Gly	
35 40 45	
GAC CGC TGC CCC CAC GGC AGC CCT CAG GGC CCG CTG GCC CCA CCG GCC	192
Asp Arg Cys Pro His Gly Ser Pro Gln Gly Pro Leu Ala Pro Pro Ala	
50 55 60	
AGC CCT GGC CCT TTT GCT ACC AGA TCC CCA CTT TTC ATC TTT GTG AGA	240
Ser Pro Gly Pro Phe Ala Thr Arg Ser Pro Leu Phe Ile Phe Val Arg	
65 70 75 80	
AGA TCT TCT CTG CTG TCC CGG TCC TCC AGT GGG TAT TTC TCT TTT GAC	288
Arg Ser Ser Leu Leu Ser Arg Ser Ser Ser Gly Tyr Phe Ser Phe Asp	
85 90 95	
ACA GAC AGG AGC CCG GCA CCC ATG AGT TGT GAC AAG TCA ACA CAA ACC	336
Thr Asp Arg Ser Pro Ala Pro Met Ser Cys Asp Lys Ser Thr Gln Thr	

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	100	105	110	
CCA AGT CCT CCT TGC CAG GCC TTC AAC CAC TAT CTC AGT GCA ATG GCT				384
Pro Ser Pro Pro Cys Gln Ala Phe Asn His Tyr Leu Ser Ala Met Ala				
	115	120	125	
TCC ATA CGA CAG TCT CAG GAG GAA CCT GAA GAT CTG CGC CCG GAG ATA				432
Ser Ile Arg Gln Ser Gln Glu Glu Pro Glu Asp Leu Arg Pro Glu Ile				
	130	135	140	
CGG ATT GCA CAG GAG CTG CGG CGG ATC GGA GAC GAG TTC AAC GAA ACT				480
Arg Ile Ala Gln Glu Leu Arg Arg Ile Gly Asp Glu Phe Asn Glu Thr				
	145	150	155	160
TAC ACA AGG AGG GTG TTT GCA AAT GAT TAC CGC GAG GCT GAA GAC CAC				528
Tyr Thr Arg Arg Val Phe Ala Asn Asp Tyr Arg Glu Ala Glu Asp His				
	165	170	175	
CCT CAA ATG GTT ATC TTA CAA CTG TTA CGC TTT ATC TTC CGT CTG GTA				576
Pro Gln Met Val Ile Leu Gln Leu Leu Arg Phe Ile Phe Arg Leu Val				
	180	185	190	
TGG AGA AGG CAT TG				591
Trp Arg Arg His				
	195			

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 196 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Met	Ala	Lys	Gln	Pro	Ser	Asp	Val	Ser	Ser	Glu	Cys	Asp	Arg	Glu	Gly	1	5	10	15
Gly	Gln	Leu	Gln	Pro	Ala	Glu	Arg	Pro	Pro	Gln	Leu	Arg	Pro	Gly	Ala	20	25	30	
Pro	Thr	Ser	Leu	Gln	Thr	Glu	Pro	Gln	Gly	Asn	Pro	Asp	Gly	Glu	Gly	35	40	45	
Asp	Arg	Cys	Pro	His	Gly	Ser	Pro	Gln	Gly	Pro	Leu	Ala	Pro	Pro	Ala	50	55	60	
Ser	Pro	Gly	Pro	Phe	Ala	Thr	Arg	Ser	Pro	Leu	Phe	Ile	Phe	Val	Arg	65	70	75	80
Arg	Ser	Ser	Leu	Leu	Ser	Arg	Ser	Ser	Ser	Gly	Tyr	Phe	Ser	Phe	Asp	85	90	95	
Thr	Asp	Arg	Ser	Pro	Ala	Pro	Met	Ser	Cys	Asp	Lys	Ser	Thr	Gln	Thr	100	105	110	
Pro	Ser	Pro	Pro	Cys	Gln	Ala	Phe	Asn	His	Tyr	Leu	Ser	Ala	Met	Ala	115	120	125	
Ser	Ile	Arg	Gln	Ser	Gln	Glu	Glu	Pro	Glu	Asp	Leu	Arg	Pro	Glu	Ile	130	135	140	
Arg	Ile	Ala	Gln	Glu	Leu	Arg	Arg	Ile	Gly	Asp	Glu	Phe	Asn	Glu	Thr	145	150	155	160
Tyr	Thr	Arg	Arg	Val	Phe	Ala	Asn	Asp	Tyr	Arg	Glu	Ala	Glu	Asp	His	165	170	175	
Pro	Gln	Met	Val	Ile	Leu	Gln	Leu	Leu	Arg	Phe	Ile	Phe	Arg	Leu	Val	180	185	190	
Trp	Arg	Arg	His													195			

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(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 417 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..417

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

ATG GCA AAG CAA CCT TCT GAT GTA AGT TCT GAG TGT GAC CGA GAA GGT	48
Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly	
1 5 10 15	
AGA CAA TTG CAG CCT GCG GAG AGG CCT CCC CAG CTC AGA CCT GGG GCC	96
Arg Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala	
20 25 30	
CCT ACC TCC CTA CAG ACA GAG CCA CAA GAC AGG AGC CCA GCA CCC ATG	144
Pro Thr Ser Leu Gln Thr Glu Pro Gln Asp Arg Ser Pro Ala Pro Met	
35 40 45	
AGT TGT GAC AAA TCA ACA CAA ACC CCA AGT CCT CCT TGC CAG GCC TTC	192
Ser Cys Asp Lys Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe	
50 55 60	
AAC CAC TAT CTC AGT GCA ATG GCT TCC ATG AGG CAG GCT GAA CCT GCA	240
Asn His Tyr Leu Ser Ala Met Ala Ser Met Arg Gln Ala Glu Pro Ala	
65 70 75 80	
GAT ATG CGC CCA GAG ATA TGG ATC GCC CAA GAG TTG CGG CGT ATC GGA	288
Asp Met Arg Pro Glu Ile Trp Ile Ala Gln Glu Leu Arg Arg Ile Gly	
85 90 95	
GAC GAG TTT AAC GCT TAC TAT GCA AGG AGG GTA TTT TTG AAT AAT TAC	336
Asp Glu Phe Asn Ala Tyr Tyr Ala Arg Arg Val Phe Leu Asn Asn Tyr	
100 105 110	

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CAA GCA GCC GAA GAC CAC CCA CGA ATG GTT ATC TTA CGA CTG TTA CGT 384
 Gln Ala Ala Glu Asp His Pro Arg Met Val Ile Leu Arg Leu Leu Arg
 115 120 125

TAC ATT GTC CGC CTG GTG TGG AGA ATG CAT TG 417
 Tyr Ile Val Arg Leu Val Trp Arg Met His
 130 135

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 138 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly
 1 5 10 15

Arg Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala
 20 25 30

Pro Thr Ser Leu Gln Thr Glu Pro Gln Asp Arg Ser Pro Ala Pro Met
 35 40 45

Ser Cys Asp Lys Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe
 50 55 60

Asn His Tyr Leu Ser Ala Met Ala Ser Met Arg Gln Ala Glu Pro Ala
 65 70 75 80

Asp Met Arg Pro Glu Ile Trp Ile Ala Gln Glu Leu Arg Arg Ile Gly
 85 90 95

Asp Glu Phe Asn Ala Tyr Tyr Ala Arg Arg Val Phe Leu Asn Asn Tyr
 100 105 110

Gln Ala Ala Glu Asp His Pro Arg Met Val Ile Leu Arg Leu Leu Arg
 115 120 125

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Tyr Ile Val Arg Leu Val Trp Arg Met His
130 135

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 597 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

ATG GCA AAG CAA CCT TCT GAT GTA AGT TCT GAG TGT GAC CGA GAA GGT	48
Met Ala Lys Gln Pro Ser Asp Val Ser Ser Glu Cys Asp Arg Glu Gly	
1 5 10 15	
AGA CAA TTG CAG CCT GCG GAG AGG CCT CCC CAG CTC AGA CCT GGG GCC	96
Arg Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala	
20 25 30	
CCT ACC TCC CTA CAG ACA GAG CCA CAA GGT AAT CCT GAA GGC AAT CAC	144
Pro Thr Ser Leu Gln Thr Glu Pro Gln Gly Asn Pro Glu Gly Asn His	
35 40 45	
GGA GGT GAA GGG GAC AGC TGC CCC CAC GGC AGC CCT CAG GGC CCG CTG	192
Gly Gly Glu Gly Asp Ser Cys Pro His Gly Ser Pro Gln Gly Pro Leu	
50 55 60	
GCC CCA CCT GCC AGC CCT GGC CCT TTT GCT ACC AGA TCC CCG CTT TTC	240
Ala Pro Pro Ala Ser Pro Gly Pro Phe Ala Thr Arg Ser Pro Leu Phe	
65 70 75 80	
ATC TTT ATG AGA AGA TCC TCC CTG CTG TCT CGA TCC TCC AGT GGG TAT	288
Ile Phe Met Arg Arg Ser Ser Leu Leu Ser Arg Ser Ser Ser Gly Tyr	
85 90 95	

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TTC TCT TTT GAC ACA GAC AGG AGC CCA GCA CCC ATG AGT TGT GAC AAA	336
Phe Ser Phe Asp Thr Asp Arg Ser Pro Ala Pro Met Ser Cys Asp Lys	
100 105 110	
TCA ACA CAA ACC CCA AGT CCT CCT TGC CAG GCC TTC AAC CAC TAT CTC	384
Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe Asn His Tyr Leu	
115 120 125	
AGT GCA ATG GCT TCC ATG AGG CAG GCT GAA CCT GCA GAT ATG CGC CCA	432
Ser Ala Met Ala Ser Met Arg Gln Ala Glu Pro Ala Asp Met Arg Pro	
130 135 140	
GAG ATA TGG ATC GCC CAA GAG TTG CGG CGT ATC GGA GAC GAG TTT AAC	480
Glu Ile Trp Ile Ala Gln Glu Leu Arg Arg Ile Gly Asp Glu Phe Asn	
145 150 155 160	
GCT TAC TAT GCA AGG AGG GTA TTT TTG AAT AAT TAC CAA GCA GCC GAA	528
Ala Tyr Tyr Ala Arg Arg Val Phe Leu Asn Asn Tyr Gln Ala Ala Glu	
165 170 175	
GAC CAC CCA CGA ATG GTT ATC TTA CGA CTG TTA CGT TAC ATT GTC CGC	576
Asp His Pro Arg Met Val Ile Leu Arg Leu Leu Arg Tyr Ile Val Arg	
180 185 190	
CTG GTG TGG AGA ATG CAT TG	597
Leu Val Trp Arg Met His	
195	

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 198 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Met	Ala	Lys	Gln	Pro	Ser	Asp	Val	Ser	Ser	Glu	Cys	Asp	Arg	Glu	Gly
1				5				10						15	

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Arg Gln Leu Gln Pro Ala Glu Arg Pro Pro Gln Leu Arg Pro Gly Ala
 20 25 30

Pro Thr Ser Leu Gln Thr Glu Pro Gln Gly Asn Pro Glu Gly Asn His
 35 40 45

Gly Gly Glu Gly Asp Ser Cys Pro His Gly Ser Pro Gln Gly Pro Leu
 50 55 60

Ala Pro Pro Ala Ser Pro Gly Pro Phe Ala Thr Arg Ser Pro Leu Phe
 65 70 75 80

Ile Phe Met Arg Arg Ser Ser Leu Leu Ser Arg Ser Ser Ser Gly Tyr
 85 90 95

Phe Ser Phe Asp Thr Asp Arg Ser Pro Ala Pro Met Ser Cys Asp Lys
 100 105 110

Ser Thr Gln Thr Pro Ser Pro Pro Cys Gln Ala Phe Asn His Tyr Leu
 115 120 125

Ser Ala Met Ala Ser Met Arg Gln Ala Glu Pro Ala Asp Met Arg Pro
 130 135 140

Glu Ile Trp Ile Ala Gln Glu Leu Arg Arg Ile Gly Asp Glu Phe Asn
 145 150 155 160

Ala Tyr Tyr Ala Arg Arg Val Phe Leu Asn Asn Tyr Gln Ala Ala Glu
 165 170 175

Asp His Pro Arg Met Val Ile Leu Arg Leu Leu Arg Tyr Ile Val Arg
 180 185 190

Leu Val Trp Arg Met His
 195

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

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(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Glu Tyr Met Pro Met Glu
1 5

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(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Leu Arg Arg Ile Gly Asp Glu
1 5

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 nucleotides
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

TGGGAGAAC A GGGTACATCG ATGCGGG

27

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 nucleotides
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

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GTGAACTGGG AGCGGATTGT GG

22

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CACCTGCACA CCGCGATCCA GGATAACG

28

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

AGGATCCACC ATGGCCAAGC AACC

24

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 36 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GTTCTAGATC AGCACATCTC TCTGGGATAG AACCAC

36

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

GCAAGCTTCCT GTGCAATCCG TATCTCC

27

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

GGAAGCTTGC AACGAACTT ACACAAGGTG

30

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

GCAAGCTTCC GGGCGCAGAT CTTC

24

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

CAAAGCTTCC TGTGCAATCC GTATCTCC

28

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

GGAAGCTTTG AACGAAACTT ACACAAGGTG

30

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

CAAAGCTTCC GGGCGCAGAT CTTC

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(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 nucleotides

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

TAAGTTCTGA GTGTGACAGA GAAGGTGG

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(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 nucleotides

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

CAGTTGTAAG ATAACCATTT GAGGGTGG

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